COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

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Strike Threatens Data Transmissions

WASHINGTON, D C More than 60 cut cables were reported in a single state during the first week of the strike of 200,000 Bell Telephone System and Western Electric Company workers The company said that the sabotage had so far not caused major dislocations of service, and that repairs had been made promptly

J Beirne

The union leader, Joseph Beirne, issued a statement pointing out that acts of sabotage had never been known to shorten any strike even by a minute He called for his members to refrain from any such action while saying he felt certain that the people concerned were not members of the Communication Workers of America

Circuits Unaffected

The strike, the first nationwide one in more than 21 years did not immediately affect time sharing services and other remote computer operations Most of their operations involve dialing and the dial circuits are working in almost normal manner In fact, AT&T said that such degraded service as did exist in the early stages of the strike was vanishing as the management personnel now manning the system became more expert

"When they went down to work at first, the didn't know what they were doing," a spokesman told COMPUTERWORLD, "but they are learning fast and things are beginning to go quite smoothly "

The Communication Workers of America, however, stated that they expected the dial operations to be degraded in time "The Bell system is a $30 billion computer and without the skills of our members, who repair and keep it running, that computer will eventually become an enormous pile of junk," said Beirne

Computer Analogy Used

He later explained that he used the analogy of the computer for the Bell System because the American people, the CWA believed, identified themselves with the computer concept nowadays They did this because, like computers the Bell System functions so smoothly in normal operation, he said

The CWA itself has a history of computers and is currently using a Univac 9300 for their dues refund and mailing systems

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Automated Primary

Elaine Dauphin shows how 2 million college students will indicate their presidential preferences by punching holes in ballots for the first automated primary. Story on Page 2.

Computer Serves 113 at One Time

HANOVER, N.H. The Dartmouth College Kiewit Computation Center here has set what they believe to be a "world record" for the number of active users connected simultaneously to a time sharing system With their new GE 635 system they recently had 113 active users at one point in time and yet the change in response time to users was not noticeable

Eugene Fucci, project director, told COMPUTERWORLD that they are not aware of any place else that has the capability, and they had never had as many users on-line at the same time before Fucci was using the system for some of his own work at the time and commented, "I didn't notice any change in response time, although, of course, it will vary a bit from user to user, depending upon the lengths of the files he is using "

New System Used

The Dartmouth 635 system was recently installed to replace the original GE 235 system which had been in operation since 1965

Last year the Pierce Panel, a federal investigation board, recommended that universities and the government cooperate in the immediate establishment of large central educational computing facilities capable of serving several institutions. Subsequently Dartmouth, in cooperation with the National Science Foundation (NSF), formed a pilot group with the government to establish a regional computing center that could be accessible as an open stack library. One of the major goals was to find out how many people could be simultaneously served.

For news of how Dartmouth is preparing for the next phase of its expanded role in northern New England, please see Page 7

Thousands to Attend Spring Conference

ATLANTIC CITY, N J The annual Spring Joint Computer Conference, which last year drew 15,000 persons, will open here April 29

Sponsored by the American Federation of Information Processing Societies (AFIPS), the four day 1968 conference will include 21 sessions on computers and communications, exhibits by 138 companies, and guided tours to nearby technical facilities.

Conference chairman Albert S. Hoagland of IBM said the conference "will focus attention on the growing interrelation of computers and communications and their emerging interdependence."

Principal speakers at the conference will be H I Romnes, chairman of AT&T, and Dr George H Brown, executive vice president, research and engineering, at RCA. Romnes will discuss computers and communications at the opening conference session Tuesday morning Brown will speak at the Wednesday night banquet on the future interaction of computers and their users

The W W McDowell Award for contributions to computer development will be presented to Seymour R Cray of Control Data Corp at the banquet

[The conference program and related stories appear on Pages 8 and 9 of COMPUTERWORLD.]

Activities will begin April 29 with pre-conference registration from 4-10 p m. at the Holiday Inn and a pre-conference cocktail party at 5 30 p m The conference will open at Convention Hall April 30.

Films on computers, data processing, and computer applications will be shown at the hall in the Computer Sciences Theater Hours are noon-6 p m. April 30, 10 a m.-5 p m May 1, and 10 a m -4 p.m May 2 A theater program will be available at the registration desk

The conference fee for members of AFIPS affiliated groups will be $20 for three days and $10 for one day The fee for nonmembers will be $30 for three days and $15 for one day Full time students may attend by paying a flat $3 fee.

An automated information center with 12 remote terminals will

(continued on page 2)

Two EDP Stocks Up 53%, 37% in Week

Computer stock prices continued to rise last week, in contrast to the Dow Jones industrial average which fell 0.89% to 898 at Friday's close CW's Computer Stock Composite Index rose 4.8%.

The week also featured the largest percentage gains made by individual computer stocks in the past month Brandon Applied Systems (BAS) and Recognition Equipment each made gains of more than 35%. Brandon jumped

(continued on page 13)

ITT Plans National Time Sharing Service Network

The nearest ITT Data Services IBM 360 time sharing computer will be only a telephone call away from anywhere in the country when ITT completes its New York, Boston, and Los Angeles networks.

NEW YORK – ITT Data Services has embarked on an expansion program to make time sharing available to everyone in the United States within 18 months.

The new service, called Reactive Terminal Service (RTS), which has just been tested in the New York area will be introduced in the Boston, Los Angeles, and Washington, D.C areas during the next three months, according to Robert A Leonard, company president ITT Data Services is a division of the International Telephone and Telegraph Corp

The new systems, using IBM 360s, will enable businessmen, engineers, scientists, and other computer users to converse with computers miles away via teletypewriters, portable terminals, and a variety of other remote communications devices

Previously ITT Data Services, formed in 1965, had offered batch processing in the New York area through a network of satellite centers connected to a regional computer center in Paramus, N J

"Major Step Forward"

Leonard said the new service "represents a major step forward in computer technology, since it will make the full power of large scale third generation computer systems commercially available to anyone, anywhere in the country via standard communications lines "

(continued on page 16)

Spring Conference Opens In Atlantic City April 29

(continued from page 1)

enable attendees to submit and receive messages and to obtain registration information and local addresses of others attending the conference

Exhibit Hours

The Convention Hall exhibits will be open from 11 a.m.-6 p.m. April 30, 10 a.m.-8 p.m. May 1, and 10 a.m.-5 p.m. May 2

Among the exhibits will be two films highlighting the dangers of mishandling magnetic tape

A cartoon featuring Prof Cy Bernetics and his friend Chad entitled "The Conspiracy in Computer Room C" will be shown publicly for the first time at the 3M Company booth. The subtitle might be "how to disrupt a computer room."

The other film, "The Care and Handling of Computer Tape," will debut at the Audio Devices Inc exhibit, booth 312. Proper handling of tape is shown and warnings are given against the "seven deadly spoilers" ashes, lint, fingerprints, paper dust, moisture, oil, crumbs, and fingernails

Dr George Brown

ACM Schedules Atlantic City Seminars

ATLANTIC CITY – Digital simulation of physical systems will be the subject of a seminar here April 29 by the Association for Computing Machinery (ACM), in conjunction with the Spring Joint Computer Conference. The half-day seminar, to be held at the Traymore Hotel, will also be given in four other cities May 20-24.

Systems analysis techniques will be discussed in another ACM seminar immediately following the Conference, May 3-4, also at the Traymore That one will be repeated at the Somerset Hotel, Boston, May 6-7, and will cover techniques of data base organization and design, documentation, systems testing, conversion, and control.

The half day seminar on digital simulation of physical systems will be held May 20 in Minneapolis, May 21 in Colorado Springs, May 23 in Los Angeles, May 24 in San Francisco, as well as April 29 in Atlantic City

The two day seminar on computer systems analysis techniques will be held May 3-4 in Atlantic City, May 6-7 in Boston

Seminar fees range from $20 to $75 for ACM members, and from $22.50 to $110 for nonmembers, including study materials and refreshments Additional information may be obtained from J.M. Adams, Jr, ACM, 211 East 43rd St., New York, N.Y 10017

Exhibits Offer Hands-On Opportunities

ATLANTIC CITY – Although technically not part of the Spring Joint Computer Conference, the exhibits by 135 companies will be one of the main attractions. New products and new services appear so regularly in the computer field that the exhibits give attendees a rare hands-on opportunity.

Among the products and services that will be demonstrated at the conference are the following.

New Tape

Guaranteed performance magnetic tape will be displayed at the 3M exhibit. New Scotch 777GP tape is electronically tested throughout the manufacturing process and therefore, according to 3M, does not require bit by bit individual roll certification

An off-line tape drive that transforms cartridges of magnetic tape recorded on the Communitype 100SR Data Communication System to computer compatible magnetic tape, will be demonstrated at booth 1708-09. The Communitype TC500RO Tape Cartridge Converter Unit sells for $18,000 and leases for a minimum of $360 per month, plus maintenance. The converter translates IBM Selectric typewriter codes recorded on magnetic tape into a computer compatible language

For example, a magnetic tape containing a full day's work by an average typist may be converted to computer compatible tape in about four minutes

The new Communitype tape cartridge converter, left, accepts magnetic tapes from the 100SR Data Communications System, right, and converts the IBM Selectric typewriter codes into computer compatible format.

Time Sharing Exhibit

Visitors to the conference will be able to converse directly with an SDS 940 computer and use it as a paying customer would Tymshare Inc., a computer utility firm, will have six remote terminals at the conference linked with its SDS 940 in Englewood Cliffs, N.J The time sharing company has Fortran II and IV, Tymshare Basic, CAL (conversational algebraic language), and others.

A random access disk memory system designed for time sharing applications will be shown by Data Products Corp., booths 1805-10. The Model 5085 time/share Discfile stores over five million bits and features a modular concept which permits preventive and corrective maintenance to be performed on individual components while the remaining modules operate on-line with the computer

Flow Charting

Visitors will be able to discuss proprietary software products and other services with representatives of Applied Data Research, Inc. supplier of Autoflow, ESI (engineering and scientific interpreter) and IAM (interactive algebraic manipulation). Autoflow is a software system that produces two dimensional flow charts directly from Cobol, Fortran, and other assembly language source programs ESI can solve modest computational problems or serve as an educational aid in teaching computer technology.

Digital Development Corp., a manufacturer of memory storage systems, will display components of its disk storage systems. Each magnetized disk has 64 information tracks on each surface, and the storage device contains all silicon circuitry.

A new accessory to Milgo Electronic's line of narrow band data sets will be shown The Model 10 Voice Adapter allows users of Milgo's Modem 4400/24PB data sets to transmit voice or Teletype simultaneously with 2400 byte per second data over a single unconditioned telephone line. Milgo data sets thus permit "piggy back" use of unconditioned telephone lines.

Peripheral and data communication equipment will be exhibited by Computer Industries Inc., a subsidiary of University Computing Co.

340 Hours Needed For Poll Analysis

WASHINGTON, D.C – A computer will make the first complete tabulation and analysis of the voting preferences of a nationwide group from the results of Choice 68, the national collegiate presidential primary (NCPP) held April 24

Votes by some 2 million students on presidential candidates and national issues like Vietnam will be processed, totaled, and analyzed by a large scale Univac 1108 in Univac's Washington offices

A team of about 20 Univac computer specialists will devote their full time efforts for about one week to processing the Choice 68 returns. This processing will require about 300 hours on each 1004 and a total of about 40 hours on the 1108.

Working from data supplied on punched cards by each voter, the computer will breakdown the voting from nearly 1500 colleges representing more than 75% of the nation's total college enrollment.

Dr Carl Hammer, director of scientific and computer services for Univac's Federal Systems Division, pointed out that in other national elections, computers deal with totals from individual polling places In Choice 68, on the other hand, the computer will handle seven types of data from each punched card ballot, thoroughly comparing and analyzing the voting on candidates and issues.

Ballot Breakdown

The basic data on the ballot shows the voter's age and party, whether he is a foreign student, his first, second, and third choices for President from among 13 listed candidates or his own write-ins, the course which he believes the U.S. should pursue in Vietnam; the course which it should pursue in bombing of North Vietnam; and the area of government spending which should receive highest priority to meet the urban crisis.

From about two million ballots, the computer will tabulate percentages of first, second, and third choice votes for each candidate, and the percentage of students favoring each course of action under the three referendum questions.

The computer will further analyze the voting by age groups, party, region, and type of school, and will show the exact number of votes for each of 1872 possible combinations of first, second, and third choices.

At their campus polling places, students pushed out perforations on the cards to indicate their preferences. These punched cards are to go to branch offices of Univac in Chicago, Los Angeles, and Silver Spring, Md., where Univac 1004 card processors will convert them to about 25 magnetic tapes. These tapes will be sent to Washington, where they will be compressed into three reels holding the entire primary data on about 3600 feet of tape. The computer then will tabulate complete returns.

Six million punched cards were distributed to participating universities, colleges, and junior colleges The detailed breakdown of the voting is expected to be available during the first week of May

Cobol F Users Invited To Free Lunch by PSC

NEW YORK Programming Sciences Corp., which currently holds the maintenance contract from IBM for the Cobol F compiler, is inviting users of the Cobol F system to a free lunch here April 26 to hear about an improved test procedure that PSC would like them to sponsor. The procedure is designed to improve the efficiency of program testing in installations and includes a special data generator for Cobol F.

A PSC spokesman said they expect about 20 users to attend the meeting. They would welcome more users, but as lunch is included, they would like users to contact them ahead of time for reservations.

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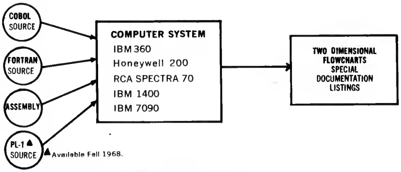

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Editorials

Winter's Gone

The Spring Joint Computer Conference always has a great psychological advantage over the many other conferences on the computing calendar. It comes in the spring.

It comes nearly five months after the previous major conference. And lots of things have been going on since then. We know of quite a few, and have had to expand this newspaper to cover them. But we know that we don't know them all — or anything lika them all.

Now we will see the rest as they appear at the first major event of the year, the Spring Joint.

Hope to see you all at Atlantic City.

Too Little, Too Late

The timing of the publication of the positions of candidates in the ACM election was bad — and so was the amount of room which they were qiven to state their positions. The positions were too little, and too late.

To little, because of the number of words to which most of them were restricted. It could be done — but it took a great writer to manage it. And only one of the candidates appears to be a great writer.

Too late, because the membership did not see these positions until after the nominations had closed. It was not possible to see the positions — and then decide it was worth while offering an alternative.

A pity. Having the candidates say what they stood for could have successfully brought the membership into contact and action. Theoretically it should work. But as practiced by the ACM it was simply —

Too Little — and Too Late.

The Utilities' Utility!

What happens to one utility when another one does not work perfectly? This is a question which is often raised by service bureau managers trying to locate who is to blame (and who is to pay) when a telephone company call is handled by a number of different companies; and by telephone companies when they are arguing the need for legal protection of their right to control everything involved in the networks.

Wall, with the telephone workers' strike we have a test case with the various remote computerized operations including time sharing. It will be interesting to see what happens.

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Measure for Measure

Is the Model 85 'Up to 3 Times' Faster' Than the Model 75?

The first Model 85 claim which we investigated was the one involving the comparison between the performance of the Model 75 and the Model 85.

IBM told us that we should look at Table 3 in the January 1968 Technical Report "System 360, Model 85 System Design" with regard to this claim. The table is reproduced alongside. The background of the report shows that IBM selected some 26 programs for intensive study during the design process of the Model 85, and Table 3 shows details of the comparative performance of eleven of these programs on specified configurations of the 360/65, 360/75, 360/85, and 360/91.

The table provides only an indirect comparison between the performance of the Model 360/75 and the Model 360/85, both being shown as compared to the performance of the 360/65.

The authors of the report note the figures in the table are accurate only to a tolerance of 10%, except for the 360/75 figures which have a tolerance of 15%.

The selected programs shown do not include any using decimal arithmetic, or any Cobol object programs. Nor is the Minimax program, cited by the authors as being the test of the best and worst case conditions, included.

No figures are given for the 512K 360/85s, although these are standard line and can be expected to be considerably slower than the other versions, particularly for sorts, compiles, and other storage limited programs.

Figures are given for all 11 programs comparing the Models 65, 75, and the standard 1024K Model 85s. None of these figures shows the Model 85 operating at three times the speed of the Model 75. (See Table 1.)

Figures also are given for all programs comparing the Models 65, 75, and 85 fitted with the special multiply feature. Five of the programs are substantially increased in their operating speed by this additional, extra cost option. Only in one case do the figures show the Model 85 as working at three times the speed of the Model 75 — and even here the result is actually indecisive as the result asks for greater accuracy than the authors of the table indicate exists.

Figures are also given for all 11 programs comparing the performance of the Models 65, 75, and 85 fitted with the special additions to the buffer storage unit. Six programs showed substantially improved performance with the 8K buffer extension (in fact all programs which were not improved by the inclusion of the multiply feature were substantially improved by the first 8K extension.) Five of these were further substantially improved by the inclusion of the second 8K buffer extension.

The 3-1 ratio claimed by IBM for the 360/85's performance advantage over the 360/75 has, like any ratio, two ways of being justified. It may be that the 360/85 is fast, or it could be that the 360/75 is slow.

The Auerbach Standard EDP Reports, which is a standard industry reference, and which is reviewed with the manufacturer before publication, indicates that the internal performance of the 360/75 is twice that of the 360/65.

However, the simulated results used by the authors of the Technical Report appear to say that the 360/75 is much less powerful than that. The 11 programs listed average under 1.5 times the performance of the 360/65 — with the sorts, compilations, etc. averaging only 1.3 times the performance of the 65.

The figures indicated that five out of the six programs which were substantially improved by the addition of extra buffer storage had in fact been calculated to achieve the 3-1 ratio with the first buffer extension. However, the ratio was only narrowly achieved, and in no case, with either just one buffer extension or with both buffer extensions, was it outside the tolerance ranges applied by the authors to their figures.

The Verdict

It is not completely demonstrated but appears possible that the Model 85 can run a program at three times the speed of the Model 75 under these circumstances:

1) The Model 85 has 4 way interleaving.
2) The input/output operations involved in other programs, or in the same program, do not impose a significant loading.
3) The Model 85 is fitted with the extra cost high speed multiply feature, and the program has many multiply operations.
4) The Model 85 is fitted with the extra cost buffer extensions and the programs are basically core-limited-compilation, assemblies, sorts, etc.

No information is included which directly allows any statement to be made about the comparative performance under the following conditions. However, indications are that the Model 85 will not operate at three times the speed of the Model 75 while running the following:

1) Cobol object programs in binary or decimal.
2) Any program using decimal arithmetic.
3) Any program on a 512K Model 85.

TABLE 3
RELATIVE INTERNAL PERFORMANCE FOR EXECUTION
OF SAMPLE INSTRUCTION SEQUENCES
(SPEED OF THE MODEL 65 EQUALS 1.0)

INSTRUCTION SEQUENCES TAKEN FROM THE FOLLOWING JOB STEPS***	PROCESSOR						
	NO OF INSTRUCTIONS IN SAMPLE JOB SEGMENT	2075J	2085J*	2085J WITH HIGH SPEED MULTIPLY FEATURE*	2085J WITH FIRST BUFFER EXPANSION FEATURE*	2085J* WITH FIRST & SECOND BUFFER EXPANSION FTR	2091K**
1 COMPILE JOB STEP USING OS/360 FORTRAN IV (H)	235,509	1.3	3.2	3.2	3.6	3.6	3.6
2 COBOL COMPILE	233,945	1.3	3.7	3.7	4.1	4.3	NOT AVAIL
3 ASSEMBLY JOB STEP USING OS/360 ASSEMBLER (F)	210,940	1.3	3.8	3.8	4.1	[illegible]	3.5
4 LINK EDIT JOB STEP	228,864	1.3	3.8	3.8	[illegible]	4.5	3.8
5 SORTING OPERATION USING OS/360 SORT	214,142	1.2	3.2	3.2	3.6	4.1	3.4
6 HEAT TRANSFER PROBLEM	249,455	1.5	3.8	[illegible]	4.3	4.5	4.1
7 DATA REDUCTION PROBLEM	269,993	1.5	[illegible]	4.4	4.3	4.4	4.1
8 CURVE FITTING BY LEAST SEQUENTIAL METHOD	377,62[illegible]	[illegible]	4.8	6.3	4.7	4.8	5.2
9 INTEGRAL EVALUATION WITHIN 4 3-LEVEL NESTED DO-LOOP	[illegible]	1.7	4.5	6.4	4.5	4.5	7.8
10 MATRIX EIGENVALUE CALCULATIONS W/IN NESTED DO-LOOPS	266,157	1.7	3.8	4.8	3.8	3.8	8.1
11 PARTIAL DIFFERENTIAL EQUATION SOLUTION USING ADI METHOD	328,750	1.8	4.8	6.4	4.8	4.8	13.9

INTERNAL CPU PERFORMANCE ONLY

NOTE
*FOUR WAY STORAGE INTERLEAVING
**SIXTEEN-WAY STORAGE INTERLEAVING
***DECIMAL INSTRUCTIONS ARE NOT INCLUDED IN THESE SAMPLE INSTRUCTION SEQUENCES

THE ABOVE RATIOS ARE SUBJECT TO A 10% TOLERANCE EXCEPT FOR THE 75 RATIOS WHICH ARE SUBJECT TO A 15% TOLERANCE
THESE RATIOS ARE ONLY FOR THE INSTRUCTION SEQUENCES TESTED AND ARE NOT NECESSARILY CORRECT FOR A COMPLETE JOB STEP

Are Time Sharing Bureaus 'Utilities'?

CW Viewpoint: By E. M. Bennett

Dr Edward M. Bennett, president of Viatron Computer Systems Corp., Burlington, Mass., previously was a MITRE Corp. project manager for Air Force project AESOP, an advanced, general purpose, real time digital data management information system. He also served as project manager for the design and implementation of an extensive data processing system for the Air Force in Southeast Asia.

Bennett earlier was a faculty member and associate director of the biomechanics laboratory at Tufts University, and on the faculty of the Electrical Engineering Department at Purdue University.

Before joining MITRE, Bennett did consulting work in the applied sciences.

He received his B.S. in electrical engineering from MIT, and two master's degrees and a PhD. from Purdue.

"Viewpoint" will provide a forum for the discussion of important ideas of interest to computer people.

"Time sharing, as a means of using a computer utility, is wrong. It is against engineering common sense. Its proponents have taken a solution that was designed for a totally different process, one used successfully for increasing the creativeness of engineers, programmers, and others.

"Now the computer utility group is trying to sell time sharing as a utility concept," Dr Edward M. Bennett said.

Under the concept, all programs are stored in a central computer along with the programs of other users. There is no computational capability at the user's terminal. If the central computer goes down, the users are dead, Bennett said.

"That is not a utility. That is an overly centralized system with a dangerous lack of redundancy.

What Is a Real Utility?

"Let's look at a real utility — electricity. A power station uses power and the users use it. They use it for all sorts of things. They use it for toasters and for milling machines."

Edison could have designed the system so that it produced some toaster power and some milling machine power, Bennett said.

"Of course there could have been problems. Someone could have decided that he wanted to toast open face sandwiches — and another unit would have had to be built to supply open face toasting power.

"That would have been ludicrous."

Program in a Peripheral

Instead, Bennett said, Edison decided that the particular use of the power was to be determined by the peripherals, which had a standard interface with the system.

"But you find nothing like this in the operation of a time sharing utility. At the center you have all the programs. This makes the centers more and more complicated and adds overhead on the users.

"Every time someone needs some new form of use, it affects the design of all the programs involved. If someone needs interaction, all the other programs must be interrupted so as to give it to him.

"This isn't engineering design. This is taking a solution for one problem and applying it to another — one that is completely different.

History of Errors

"This has happened twice in time sharing. The first proponents of time sharing were faced with a problem and wanted basically to improve the creativeness of programmers, engineers, and others.

"They saw an apparent solution in the Sage project. Terminals were connected with computers which were connected with bigger computers.

"At the terminal there was interaction between the operator and the computer. This was exactly what they needed, except for one point. The terminals used in Sage were extremely expensive.

"So another terminal, the teletypewriter, inexpensive and slow, came into use. Then they had to connect many people to a single computer so as to make the system economical.

"So time sharing was taking the solution to a telecommunications problem, the teletypewriter, and applying it to the problem of improving the creativeness of a small segment of our population.

"Is it any wonder that these ad hoc solutions don't add up to a good engineering design for a computer utility?

"I have no objection to the original concept of time sharing. It is only when you add the requirement that it be computer utility — a style of power supply — that I am sure they have gone off on the wrong track.

What a Utility Should Be

"The electric power supply is characterized by the fact that the power station is not interested in what the problem is. The problem is defined at the user's end. Standard interfaces are used.

"In fact, the entire Sage air defense project, the basis from which time sharing sprang originally, was designed specifically for this type of distribution of problem solving.

"Some of the problem solving was done at the local center's computer, some at the operator's consoles, and some at the command centers. The original system philosophy was to get the machines to do whatever you could at the place where it needed doing and then have the man do whatever was left over which programming could not do within a reasonable length of time.

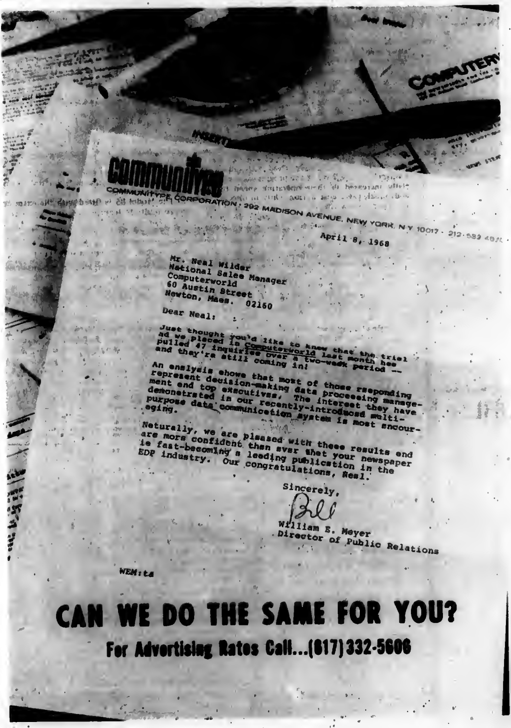
"The Sage system was a distributing system with an integrated data base in which the time share user of the display was an adjunct, an extension of the machine.

"In current time sharing philosophy, the exact opposite is the ideal — the machine is an extension of the man.

"A utility concept fundamentally should be a distributed energy system. It should be based, like Sage, on letting each center of activity do whatever it can do right on the spot, and only passing items into the center if it needs data from the center. Otherwise, it will handle it at the terminal.

"True, this means redundancy. But redundancy allows mass production economics and avoids centralization overheads.

"Computer utilities are possible. But for economic use of them, time sharing is not the way."



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April 8, 1968

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ACM Candidates Urge More Services

NEW YORK – The positions of the various candidates for the ACM top positions, national committees, and regional representatives were published in the April Communications of the ACM. These showed that most candidates were for expanding the services, and either did not mention the $25 a year dues or said that they would try to prevent them from being increased.

Galler: No Proposals Shown

Only the two candidates for president were able to give their views at reasonable length. Prof Bernard A. Galler's statement showed that there is yet another journal in the works (a survey and tutorial one) and stated that the primary goal for the next few years should be to firmly establish the ACM as a competent group of professionals. But he failed to include in his page long statement a single reference as to how he would accomplish this if he were elected president.

Bernard Galler

Canning: More Publications

Richard G. Canning made some specific points, mainly following the ones printed in COMPUTERWORLD last February. These include:

1) Giving one third of the communications over to the Special Interest Groups.
2) Putting the Journal in its present form on a subscription basis and creating a completely new Journal.
3) Giving much more attention to Business Data Processing and its needs.
4) Expanding the National Lectureship series to help the chapters.
5) Searching – and searching hard – to find methods to stop the conference "mish-mash" sessions.

Richard Canning

Vice Presidency

In the vice presidency election, now a three way race, George Glaser followed Canning and emphasized business data processing needs as being underemphasized, while Walter Carlson said that the key VP's tasks were inspiration and coordination of the ACM's growth. Melvin Klere, who has been nominated by petition, urged support for the professional development program, special interest activities, and the ACM information center.

The most colorful statement came, not too surprisingly, from Dr Herbert Grosch, candidate for member at large, who said:

"Raise Money – without raising dues.
"Improve the full-time staff.
"Open a door on Washington.
"Expand the less highbrow ACM publications, and send the numerical analysis and applied mathematics somewhere else.
"Encourage the DPMA to join AFIPS.
"In general, carry on Tony Oettinger's gallant attempt to drag the council, kicking and complaining, into the second half of the century."

H4200 Shown to Honeywell Users

WELLESLEY HILLS, MASS. – Techniques for advanced multiprogramming were demonstrated here on a large computer system for more than 100 pioneer users of large Honeywell computer systems.

The group saw concurrent processing of two jobs, such as payroll and general ledger, on the Model 4200, a system valued at more than $1.35 million. First deliveries of the 4200, next to the largest of nine Honeywell Series 200 computers, will be made in a few months after final testing is completed at the Honeywell EDP Technology Center in Waltham.

The demonstration was part of the semiannual meeting in Boston of the Honeywell Users Group, one of several self-governing organizations of Honeywell computer users.

The group heard Robert P. Henderson, Honeywell marketing vice president, discuss the market potential and the company's commitment to large scale systems development.

He was followed by Leo E. Feltz, large systems group product manager, who outlined several engineering and equipment designs being considered for use on the 4200 and 8200 computers.

The users group meets twice a year to discuss problems, solutions, and developments.

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calendar

May 3-4, Philadelphia – Fifth Annual National Colloquium on Information Retrieval. Contact: Margaret M. McGovern, 3211 Centre Road Bldg., Wilmington, Del. 19898.

May 5-24, Tarrytown, N.Y. – Life Office Management Association: Annual Management Program. Tarrytown House. Contact: LOMA, 757 Third Ave., New York, N.Y. 10017.

May 8-9, Birmingham, Ala. – Thirteen Annual Data Processing Conference. Contact: C.E. Adams, Coordinator of Conference Activities, Box 2987, University, Ala. 35486.

May 20-23, Washington, D.C. – Institute on Data Communications for Management Control. Contact: Center for Technology and Administration, The American University, 3900 Wisconsin Ave., N.W., Washington, D.C. 20016.

May 21-23, Chicago – National Microfilm Association: Annual Meeting. Conrad Hilton Hotel. Contact: NMA, 250 Prince George St., P.O. Box 386, Annapolis, Md. 21404.

May 24, Swampscott, Mass. – Systems and Procedures Association: New England Chapter Seminar. Contact: Henry J. Kochanek, Union National Bank, 61 Merrimack St., Lowell, Mass. 01853.

Despite Controversy

British Computer Society Approves Professional Status for Members

LONDON – Despite a warning that United States experience had shown professional status to be irrelevant, the British Computer Society has adopted, 5982-504, a system for granting such status.

The action was taken at a special meeting attended by 472 members. President Stanley Gill announced he had 5000 proxy votes in favor, which made discussion academic. Complaints about the procedure were rejected on the grounds there was no legal necessity to make proxy procedures clear.

Word of the impending action had created a rush to join the society before the restrictions went into effect. Membership shot up from 7000 to 18,000 members.

Membership will now be divided into three classes: affiliate, member, and fellow. Most persons will fall in the affiliate group.

The BCS, like the ACM in the U.S., is split between commercial EDP members and the technical members. The former want the BCS to give them professional status and to set ethics. The technical people want to keep the BCS simply a forum for discussions.

Christopher Strachey said U.S. experience had shown professional qualifications were irrelevant.

A.G. Fraser said he feared the BCS would become a computer managers association and the technical people would look elsewhere, perhaps to the new United Kingdom chapter of the ACM.

A complaint was registered that a member couldn't become a fellow until he was 30, although he could become a fellow of the Royal Society at 25.

APPOINTED: W. Preston Haupt has been appointed international chairman of the Data Processing Committee, Administrative Management Society. Haupt is an applications and systems analyst with Philco-Ford Corp.

Dartmouth System Adds Background

HANOVER, N.H. – The Dartmouth College time sharing network, recently transferred from a GE 235 to the large scale GE 635, is to be expanded to nine small colleges throughout northern New England under a $164,000 National Science Foundation grant. This money will be used to buy time on the Dartmouth computer for the use of the colleges. They will have teletype consoles connected to Dartmouth by long distance telephone lines.

The experiment comes shortly after the Dartmouth computer serviced 113 persons simultaneously earlier this year. This is believed to be a world record for time sharing computers.

Services Added

With the new GE 635 system Dartmouth expects to be able to add very considerable services to the ones they already provide to 18 secondary schools. Currently they run the system only for educational use, but they also intend to provide facilities for administration uses.

"We want them to be such satisfied customers that they will not find it necessary to set up their own computer systems," the project coordinator, Eugene Fucci, told COMPUTERWORLD. "To do this, we are going to add background programming and make it available from the terminals so that as well as giving them facilities for normal educational use we also will give them the facilities for the normal business computations which all colleges have.

"At the same time we will assist them in every possible way to achieve their own objectives and, in fact, we have our own objectives. We intend, for instance, to develop a new form of terminal, one which includes an advance Bellgraph display powered by a PDP computer. The cost of the terminal is about $100,000, but we think it is going to be orders of magnitude more powerful than the teletypewriters we are currently using. Teletypewriters are all very well in their own way, but after you have been using them for some time they get rather frustrating.

Research on Terminals

"When we undertook the NSF project, Themis, to develop ways of improving time sharing operations we decided that it was necessary to improve the output at the terminal end. There seemed to be only two ways to go, either to change the terminal completely or to establish a microwave link.

"At this moment we are following the development of the new terminal. It is only a research and development operation, of course, so there is no guarantee that anything worthwhile will develop, but naturally we hope so. In the future, perhaps we will have new formula terminals and microwave, but that is not with us yet."

Computer Time Subsidized

The financial arrangements with the new colleges is that each will supply its own terminals and will pay for line charges. The NSF and Dartmouth jointly will subsidize the central computer time for the next 21 months.

New partners in the experiment are Bates College, Lewiston, Me.; Berkshire Community College, Pittsfield, Mass.; Bowdoin College, Brunswick, Me.; Colby Junior College, New London, N.H.; Middlebury College, Middlebury, Vt.; Mt. Holyoke College, South Hadley, Mass.; New England College, Henniker, N.H.; University of Vermont, Burlington, Vt.; and Vermont Technical College, Randolph Center, Vt.

Currently students at 18 northern New England secondary schools have access to the computer on the Dartmouth campus.

Seven of these schools have been connected to the computer in the years since time sharing was started at Dartmouth in May 1964. The others were integrated into the regional computer plan last year under a $142,500 NSF grant.

Thomas E. Kurtz, professor of mathematics and director of Kiewit, and John G. Kemeny, professor of mathematics and pioneer in the development of Basic, will direct the project.

System Uses Basic

There is no similar computer system in northern New England outside the Boston area. Dartmouth's unique combination of time sharing and the use of Basic, in addition to 60 on-campus teletypes, enable approximately 80% of the Dartmouth undergraduates to use the computer regularly.

The Pierce Panel, a federal study published in 1967, recommended that universities and the government cooperate in the immediate establishment of large central computing facilities capable of serving several institutions.

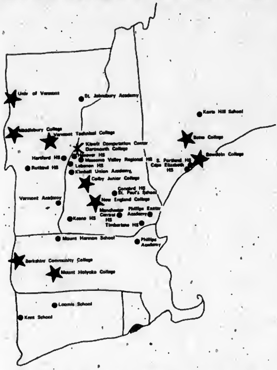
Subsequently Dartmouth, in cooperation with NSF, formed a pilot group with the goal of establishing a regional computing center which would be accessible as an open stack library.

Serves All Students

Dartmouth was a pioneer in the development of time sharing systems. It was the first college to provide the services of such a system to its entire student body.

In 1963, when Dartmouth began planning future computer needs, there were several small computers on campus. The other available alternative, a large computer which could be operated by only one person at a time, did not seem adequate. The answer was found in a time sharing system.

The program represents a practical way for the small user to gain access to a large computer at a modest cost. It, thus, is ideal for adoption as a model to test the feasibility of a regional computing center for northern New England.



Nine colleges and universities (indicated by stars) in northern New England will be added to the Dartmouth College time sharing system under a National Science Foundation grant. The nine will join 18 secondary schools (indicated by dots) already hooked into the system.

Florida Installing Police Info System With Privacy Provisions

TALLAHASSEE, FLA. – A computer at the Florida Department of Public Safety soon will be supplying state law enforcement officers with on the spot information about wanted persons, stolen property and vehicles, and other data essential to police work.

The system will be privacy protected. The computer, a recently installed IBM System/360 Model 30, is the nucleus of an intrastate network known as the Florida Law Enforcement Communication System (FLECS).

Stretching some 800 land miles, from Pensacola to Key West, Flecs includes 58 teletype terminals in 19 sheriffs' offices, 35 Florida Highway Patrol stations, and four state agencies. The network covers 34 counties and 95% of the state's population.

Linked to FBI

Flecs also is linked by terminal to the FBI's National Crime Information Center (NCIC) in Washington, D.C., and to police in 47 other states through the National Law Enforcement Teletype System (LETS).

Within Florida, the computer is being used initially to control teletype communications among law enforcement groups. It polls the 58 terminals for traffic, calls messages in sequence and routes them to the proper station or stations automatically.

Col H.N. Kirkman, director of the Department of Public Safety, said the computer has speeded communications by eliminating long waits for operators to use the lines and has reduced the need for officers to relay urgent messages by telephone or radio.

Later Expansion

The message switching application is only the beginning of a program to make the computer a vital part of police operations in all of Florida's 67 counties and in 300 municipalities. Eventually, almost 200 terminals will be on the network and the computer will provide quick access to electronic files with data on crimes, wanted persons, drivers' licenses, motor vehicle titles, license tags, stolen vehicles and other stolen property.

The disk files will be developed from existing records at the Department of Public Safety, the Department of Motor Vehicles, and the Florida Bureau of Law Enforcement at Tallahassee. Col Kirkman said the first step in converting records to electronic files will begin this year with drivers' licenses. The process will take two years to complete.

Once Flecs is in full operation, he said, a law enforcement officer anywhere in Florida will be able to check drivers, vehicles, tag numbers, serialized property, and suspicious persons with on the spot radio calls to his headquarters.

Col Kirkman said information supplied by an officer would be relayed to the computer center by teletype. The computer will check the state records and respond with an answer.

The computer can make a random search of a record and respond with an answer in less than one second.

Privacy Protected

Col Kirkman said the computer has a unique storage protection feature which restricts inquiry to those agencies privileged to confidential files. The key link to the files will be codes which correspond with programmed instructions in the computer.

The tie in with the NCIC allows Florida police to inquire into FBI files on stolen vehicles, vehicles wanted in connection with felonies, stolen license tags, stolen weapons recovered in connection with unsolved crimes and serially numbered property items. Through LETS, Florida police can communicate directly with law enforcement officers in other states.

Col Kirkman said several arrests involving wanted persons have been made because of computer checks. He said out of state communications are valuable to Florida "because of the vast number of transient persons entering and leaving the state, especially in the winter season."

"It is extremely difficult for law enforcement agencies in the state to function properly with this transient population without the benefit of rapid access to police information from sources outside the state."

C Computer operator Ray Hostutler updates his log while watching over the Florida Public Safety Department's new computer.

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Program for Spring Joint Computer Conference

Monday, April 29

4-10 p.m. – Registration, Holiday Inn.
5:30 p.m. – Cocktail Party, Holiday Inn.

Tuesday, April 30

10 a.m. – Keynote Address, Ballroom, H.I. Romnes, chairman, AT&T.
1 p.m. – Session 1, Ballroom, *Commercial Time Sharing – the Second Generation.*
Session 2, Room F-G, *Hardware-Software Tradeoffs; Effect of LSI.*
Session 3, Room H-J, *Computer Aided Design.*
3:30 p.m. – Session 4, Ballroom, *Separate Pricing for Hardware and Software?*
Session 5, Room F-G, *Scientific Applications of General Interest.*
Session 6, Room H-J, *System Debugging and Start Up Problems.*
6 p.m. – Reception, Howard Johnson's Motor Inn.

Wednesday, May 1

9 a.m. – Session 7, Ballroom, *Computers in Communications Systems*
Session 8, Room F-G, *Hybrid Computer Systems and Techniques.*
Session 9, Room H-G, *Commercial Data Processing*
1:30 p.m. – Session 10, Ballroom, *Time Sharing Status Report.*
Session 11, Room F-G, *Multiprogramming Operating Systems.*
Session 12, Room H-J, *Advances in Magnetic Memory Design.*
4 p.m. – Session 13, Ballroom, *What's Wrong With the Computing Field.*
Session 14, Room F-G, *Optimum Use of Mass Storage.*
Session 15, Room H-J, *Switching Theory.*
7 p.m. – Banquet, Hotel Shelbourne.

Thursday, May 2

9 a.m. – Session 16, Ballroom, *Man-Machine Interface.*
Session 17, Room F-G, *Languages: Today and Tomorrow.*
Session 18, Room H-J, Papers of General Interest.
1:30 p.m. – Session 19, Ballroom, *Frontiers of Computers in Society.*
Session 20, Room F-G, *Digital Simulation Techniques.*
Session 21, Room H-J, *Fault Diagnosis.*
7 p.m. – Panel Discussion, Holiday Inn, *Election Projection System.*

What's New in Computers?

Conference to Cover Developments

One of the biggest drawing cards at the Spring Joint Computer Conference each year is the opportunity to learn more about the latest developments in computer techniques. The field is changing so rapidly that last year's knowledge might as well be last century's knowledge.

Among the conference sessions scheduled are a number devoted to "how we did it" presentations, such as alternate ways of providing communications facilities for time sharing computing.

Communications and Time Sharing

To communicate with a remote computer, users must often depend on the common carriers for communications lines and for terminals. Alternatives such as privately owned lines, switching equipment, and terminals and their costs will be discussed by Howard L. Steedman and George R. Sugar, both from the ESSA Research Laboratories, Boulder, Colo. (Session 1)

Standard User Procedures

Publicly accessible on-line computers and automated information systems now use a chaotic variety of control languages and operation methods. The result threatens to destroy much of the potential value of nationwide networks of information systems. Users and potential users are the ones most affected.

J.L. Little, Office for Information Processing Standards, Washington, D.C., and Calvin N. Mooers, Rockford Research Institute, Cambridge, Mass., will discuss the problem and propose 12 elementary functions for user control and suggest keyboard assignments for these functions. (Session 7)

Producing Reports

The "More" (Martin Orlando Reporting Environment) system enables laymen to request reports with a minimum of manpower and computer time. The system, developed by the Martin Marietta Corp., Orlando, Fla., will be explained by M.J. McLaurin and W.A. Traister.

"More" reflects a dollar and time saving solution to the problem of efficiently producing constant and changing business reports. It can produce reports with complete format flexibility from any computerized file by utilizing a minimum of control cards.

Implemented on the GE625 and the IBM System/360, "More" consists of external subroutines which can be called by any program. (Session 9)

Evaluating CAI Programs

Double blind experiments with computer assisted instruction (CAI) may be set up using Computer Assisted Pairing (CAP), a program developed at the University of Michigan. CAP makes a completely automated experiment possible while assuring efficiency and sample randomization.

Michael E. Tarter, Raymond L. Holcomb, and Taissa Hauser will discuss the system and explain why the sample group need not be pretested before students are assigned to either the treatment or control group. (Session 18)

Election Projections

Systems that project the results of elections based in part on returns from preselected areas are of more than passing interest in this presidential election year.

The role computers play in election projections will be discussed by a panel chaired by Dr Irving E. Fang, assistant manager of political news, American Broadcasting Co. The design and operation of such a system will be discussed by Dr Jack Moshman, vice president, Leasco Systems and Research Corp.; Irving Roshwalb, senior vice president, Audits and Surveys Co.; and Donald G. Herzberg, executive director, Eagleton Institute of Politics, Rutgers University. (Thursday night)

Bilingual Graphical Programming

A bilingual method of graphical programming compensates for the fact that most high level languages cannot describe interactive processes, Under the method, to be described by William M. Newman, Harvard University, the interactive component is defined by a Network Definition Language. The resulting state-diagram contains references to the routines of the procedure component, which may be written in any standard language.

The two components are compiled separately but are run together under the control of a message processing Reaction Handler. (Session 3)

Graphical Data Processing

An experimental Graphical Data Processor has been developed which uses computer and imaging technologies and can accept, manipulate, and recreate graphical data.

Graphical data processing, possibly very soon, will provide advantages of speed, convenience, and automation over manual methods used in image creation, manipulation, and reproduction. Possible applications of the new processor will be discussed by E.J. Smura, Xerox Corp., Webster, N.Y. (Session 7)

Simple Data Retrieval

A new file structure sufficient for storage and retrieval of data in the most general sense will be explained by Reuben Jones, General Electric, Phoenix, Ariz. Average retrieval time for a file of 400,000 items, 100,000 dictionary words, and 200,000 synonyms will be computed. Storage and retrieval language will be discussed and examples given. (Session 9)

Sylvania Data Tablet

As a pen is moved over a new data tablet, coordinate information in three dimensions is obtained in digital and analog form. Interfaced with a computer, the Sylvania Data Tablet permits input of alphanumerics, graphic designs, and curve tracing data. The use of analog signals permits high resolution. The tablet will be discussed by James F. Teixeira and Roy P. Sallen, Sylvania Applied Research Laboratory, Waltham, Mass. (Session 16)

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•New Techniques Pose New Questions

People in the computing field spend a great amount of time developing new techniques – and then trying to answer the questions raised by these techniques.

Many of the sessions at the Spring Joint Computer Conference will be devoted to proposing solutions to such questions and to panel discussions of unsolved problems.

What's Wrong With the Field?

Problems including the gap between claims and accomplishments of manufacturers, the inadequecy of system reliability and the uneconomics of system maintenance, misuse of computation in research, and software system programmers' ignorance of, and indifference to; the needs of systems users will be discussed by a panel chaired by G.J. Feeney, General Electric.

Problems of bureaucracy, provincialism, and closed shop mentality in computer operations also will be debated by the panelists, including Julius Aronofsky, Mobile Oil Co.; C.W. Churchman, University of California; M.M. Flood, Systems Development Corp.; R.C. Raymond, General Electric; and M.A. Woodbury, Duke University. (Session 13)

Do It Yourself Systems

It would be very handy to be able to go to a "supermarket" and pick out whatever hardware and software you needed to build a system that exactly suited your needs. But will such compatibility ever become possible or must users always be dependent on one or two manufacturers?

A discussion of separate pricing for hardware and software, chaired by Robert B. Forest, Datamation, will touch on the prerequisites for off-the-shelf components and the likely results of such systems becoming available.

Panelists will be Robert V. Head, Software Resources Corp.; Richard C. Jones, Applied Data Research; Tom Marquez, Electronic Data Systems Corp.; H.R.J. Grosch, National Bureau of Standards; and Philip A. Cramer, System Development Corp. (Session 4)

Time Sharing vs. Batching

Time sharing is now an accepted processing mode, but it is not necessarily preferable to batch processing. Five experimental studies, each comparing some form of on-line and off-line processing, have appeared in the last two years. The studies, representing the first substantial base for comparing and evaluating the methods, will be discussed by H. Sackman, System Development Corp. He will review the experiments, summarize findings, problems, and pitfalls, and offer recommendations for future experimental work. (Session 1)

Computer Scheduling

A user, in his attempt to take advantage of a system, can inflict severe damage to system performance. Leonard Kleinrock, University of California, and E.G. Coffman, Jr, Princeton University, will discuss priority queuing systems for various operating modes. A variety of computer scheduling algorithms will be described and grouped according to the source of priority information, i.e., whether the jobs are separated on the basis of running time, state of the system, external considerations, delay in system, or some mixture of these. (Session 1)

Hardware-Software Tradeoffs

Large scale integration (LSI) techniques promise a significant reduction in the cost of logic. But alone they will not result in any appreciable reduction in the ownership costs of computer systems because of the costs of other components and of programming and operating a system.

Accepting the premise that LSI will permit the use of a greatly increased amount of logic hardware for the same system cost, a panel of hardware and software experts will discuss the likely effects on future machine architecture and the prospects of reduced programming costs or improved performance.

Jack A. Githens, Bell Telephone Laboratories, will be chairman. Panelists will be Bruce W. Arden, University of Michigan; Harry A. Gray, University of Pennsylvania; Linder C. Hobbs, Hobbs Associates, Corona Del Mar, Calif.; Henry S. McDonald, Bell Telephone Laboratories; and Ascher Opler, IBM. (Session 2)

Fourth Generation

What characteristics will distinguish fourth generation computer systems from third generation equipment? How can these characteristics be integrated in total systems design? How can large scale integration techniques be employed to solve design problems? What programming techniques will be used?

These and other questions about fourth generation equipment will be discussed by C.J. Walter, Marilyn J. Bohl, and A.B. Walter, all from Honeywell. (Session 18)

View of the Future

A medium to large scale fourth generation computer with an execution speed of 50-80 million equivalent third generation instructions per second will be discussed by Stanley E. Lass, Scientific Data Systems.

In the proposed system, an instruction stream would control the arithmetic unit and transmit commands to the data channel control unit. This control unit would consist of special purpose computers for fetching, storing, address incrementing, and counting for data transfers in the buffered channels. Instruction and command execution would proceed asyncronously. (Session 18)

Special Tours Arranged For Conference Wives

Tours, lectures, demonstrations, as well as lunches have been arranged for wives visiting the Spring Joint Computer Conference in Atlantic City.

Wives may register Monday from 4-10 p.m. at the Holiday Inn or Tuesday from 8:30-10:30 a.m. at the Women's Activities Desk in Convention Hall. After 10 a.m. Tuesday, registration will be at the hospitality room, Solarium, Hotel Shelburne.

Tuesday there will be a textile graphics lecture, lunch at the Smithville Inn, and tours of the convention exhibits.

Wednesday there will be an all-day trip to Garden State Racetrack, Cherry Hill, N.J. with lunch included.

Thursday there will be a trip to Batsto, Hammonton, N.J.

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Robert E. Weslund	Vice President and General Manager	6000/7000 Group Operations, Control Data Corp.	General Manager	Special Systems Div., Control Data Corp.
Lewis C. Morris	Director of Research and New Product Development	Technical Research Group Div., Control Data Corp.	Manager, Applied Sciences Section	RCA, Camden, N.J.
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Richard Bravo	Product Manager, Core Products	Computer Products Div., Ampex Corp., Redwood City, Calif.	Manager, Core Memory Products Engineering	Ampex Corp.
F.G. von Kummer	Director, Engineering	Automated Business Systems Div., Litton Industries, Carlstadt, N.J.	Director, Research and Development, Orange, N.J. and Hartford, Conn.	Royal Typewriter Div., Litton Industries
Stephen J. Lacommare	Production Manager, Display Div.	Data Disk, Inc. Palo Alto, Calif.	Project Engineer	Data Disk, Inc., Palo Alto, Calif.
Robert F. Geiger	Manager, System Sciences	Programming Services, Inc., Woodland Hills, Calif.	Senior Application Engineer	Litton Computers
Paul R. Likins	Director, Market Planning	Scientific Data Systems, Santa Monica, Calif.	Staff Member	IBM, England
Larry English	Manager, Program Design	Auerbach Corp., Boston	Staff Member, Software Design and Implementation	Auerbach Corp. Boston

Commercial Credit, RCA Form Service Bureau Corporation

BALTIMORE – Roland R. Eppley, Jr has been elected president of Central Information Processing Corp. (CIPC), a new company formed by Commercial Credit Co. and RCA to establish and operate computer centers in principal U.S. cities for time sharing and other data processing service.

The appointment of Irvin W. Kues as vice president was also announced.

CIPC expects to find its initial market for time sharing service among engineering organizations, universities, and technically based businesses. Subscribers will use remote terminal equipment such as teleprinters and display screens to communicate directly with the central computer over telephone lines.

Eppley will also continue as president of Commercial Credit Computer Corp., computer service subsidiary of the Commercial Credit Co.

Kues joined the Commercial Credit Computer Corp. as vice president in 1966.

Eppley said the new company plans to be operational in the Baltimore area in the latter part of 1968. Additional centers will be opened in 1969 and beyond.

CIPC will use RCA Spectra 70/46 computers.

British Footwear Maker Installs Univac Stock Control System

Orders and Installations

William Timpson, Ltd., British footwear manufacturer and retailer, has taken delivery of the first *Univac* 9300 system to be supplied to a customer in the British Isles. The company will use the computer for warehouse stock control and automatic replenishment of stock at its 300 retail stores.

Commercial Data Processing Center, Inc. has installed a *Honeywell* Model 120 to meet its commitments as a data processing and systems service bureau. The Knoxville, Tenn. center will offer services in accounting, payrolls, inventory control, sales analysis, school report cards and invoicing. Future applications will include sales forecasting and inventory simulation.

Leeds & Northrup Co., Philadelphia based manufacturer of industrial instruments and automatic controls, has ordered a large number of SDS Sigma computers with a total value of more then $3 million. *Scientific Data Systems* will deliver the computers over the next several years.

Two Cleveland savings and loan associations are forming a computer service which will make a central information file available for immediate inquiry on the status of any customer. The *Cleveland Federal* and the *Second Federal* S&L associations have ordered an *NCR* Century 200 computer system. The order was the first to be signed for the new computer in Cleveland, NCR said.

Allied Van Lines, Inc., long distance movers, has signed a contract with *Communitype Corp.* for the installation and lease of data communication system equipment. Allied will use the equipment for up to date information on customer shipments from all parts of the world.

Shipment of the third Model DC-30 magnetic core memory recently marked the completion of a *NASA* contract awarded to *Datacraft Corp.* in November 1967. The units will store data obtained from satellite transmissions for later processing by digital computer. ●

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Autoflow Now Charts PL/1 Source Programs

PRINCETON, N.J. – A new Autoflow language option for PL/I is to be added to the current system leased by Applied Data Research. It will be available this fall but so far has not been priced. The option has been developed at the firm's Boston facility and will be checked out on the Washington system before release. The full PL/I language will be implemented rather than a short, smaller version.

In addition to PL/1 another option to be added, at a $400 one time charge, is the Cobol Data Name, a newly developed program maintenance and debugging option. This provides cross references by source card number, page, and box on the flow chart. It allows the chart and the source cards to be easily tied together by a program during the debugging or maintenance operation.

A company spokesman told COMPUTERWORLD that the option was being offered primarily because users had asked for it and because it wasn't too difficult to add.

System Sorts Mailing Lists

PHILADELPHIA, PENNA. – A new program just marketed runs on 360/40s and up, producing labels for Cheshire mailing equipment, and organizing them in accordance with postal requirements. Companies with more than 500,000 annual mailing volumes may be interested in the system, reported to have saved one current user $6.00 per thousand pieces mailed, resulting in annual savings of more than $100,000.

Called the Postal Separation System (PSS), the program, fully warranted and supported by Atlantic Software Inc. (ASI), is described as "meeting all United States postal requirements." It can handle multiple mailing lists. It sorts the addresses by zip codes and organizes them according to bundling regulations. These involve separation by Delivery Unit, City, State, Sectional Center, and Mixed State categories. Such sorting is required for second or third class mail.

Richard Thatcher, ASI's vice president, told COMPUTERWORLD that changes in the regulations would be watched and users would receive updates to ensure that the program continued to be suitable. The cost will be between $4000-$5000.

The program is currently implemented, using Cobol, under the 360 Operating System with disk I/O. However, ASI says it will tailor the program to match other configurations.

Additional information may be obtained from Richard W. Thatcher, ASI, Lafayette Building, 5th & Chestnut, Philadelphia, Penna. 19106.

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SOFTWARE FOR SALE

Autocoder to 360 DOS-BAL

Program converts 1401 Autocoder source statements into IBM 360 DOS-BAL source statements. It is about 97% effective on typical 1401 tape programs.
Implemented for 360 with 32K or larger. Written in DOS-BAL.
Price: Upon Request
Contact: Karl A. Fugal
1536 East 1220 North
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360 Payroll System
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Series of 23 programs which process hourly and salaried payrolls in a multi-company environment. Liberal deduction capabilities. Full labor distribution reporting. Complete file maintenance facilities. Excellent documentation. Runs on IBM 360 with 32K and two 2311 Disk Drives. This system is now being used and has proven highly successful. Price: $5,000
Contact: Business Information Systems, Inc.
Times-Chronicle Building
Jenkintown, Penna. 19046

360/20 Documentation Aid

Program is designed to list and analyze Model 20 commercial applications. For each procedure it lists fourteen events, and analyzes seven of them. Some of the topics covered are: application category, program type, core use, run time, report distribution, and multi-procedure use. Implemented for 360/20 8K, written in RPG.
Price: Upon Request
Contact: Edward W. Helgesen
Pepsi-Cola General Bottlers, Inc.
1745 North Kolmar Avenue
Chicago, Ill. 60639

GIANT - General Information and ANalysis Tool

Specially designed for planning activities is now available to you. This system is being utilized today by marketing planners and economists. For further information:

Price: Upon Request
Contact: B. Rasmussen
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PAYROLL SYSTEM

Series of programs which compute payroll on a modular basis. Handles multi-companies. Produces – checks – journal – distribution – deduction register – earnings record – 941A – W2. Will handle most payrolls. Runs on IBM 360 – Mod 30 – 32K Disk – BAL – Price: $3000.00

Contact – Thomas Tierney
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1 East Fourth Street
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PAY RATE CALCULATIONS

Program calculates 24 and 26 pay period amounts and hourly rates for annual salaries between $3000 and $16,000 at $10 intervals. (Can be adjusted to other range or intervals). Implemented for IBM 1401, 4K storage. Price: Upon Request.
Contact: William Cornwell
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DISK OPERATING SYSTEM

This system provides a disk resident SORT program, with disk residence for as many as 200 programs on a single disk pack, and the supporting programs for any desired maintenance which may be required.
Implemented on IBM 1440, 8K, 1 1311 drive, index registers.
Price: Upon Request
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COBOL ANALYZER

The COBOL ANALYZER provides a cross reference of all data and paragraph names in an S/360 COBOL program. It lists the paragraph name, compiler sequence number, and COBOL verb in which a data or paragraph name is used. The ANALYZER consists of one BAL program, one COBOL program, and one sort. Requires 32K memory.
Price: $250
Contact: DATAWARE INC'
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A cross reference aid for System/360 programs. For use with individual or multiple program. COBOL-AID analyzes the Procedure Division of COBOL source programs. Every data name, literal and library name is cross-referenced by page and line number. Package includes 3 COBOL source programs and 2 IBM DOS sort programs with job control.
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COMPUTERWORLD financial

New Registrations

Listed below are brief descriptions of proposed security offerings, from firms in the data processing field, that are currently in registration with the Securities and Exchange Commission. The preliminary prospectus for any issue may be obtained from the underwriter.

ALPHANUMERIC, INC., 10 Nevada Drive, Lake Success, New York, a company involved in the development of a high speed, computer oriented photo-composition system, filed a statement to register some $625,000 of 6-1/2% convertible subordinated debentures due 1976; and 37,993 outstanding common, both to be offered from time to time. Proceeds from the offering (with the price to be set by amendment, maximum $12.15 for the common) will go to selling stockholders. The underwriter has yet to be named.

APPLIED DATA RESEARCH, INC., Route 206, Princeton, N.J., a computer software supplier, filed on March 25 some $3,000,000 of convertible subordinated debentures due 1983 and 150,000 common, of which 75,000 are to be offered by selling stockholders. Proceeds from the offering (with the price to be set by amendment, maximum for the common, $25) will be used for debt repayment, will furnish working capital, and permit equipment acquisition. The underwriter, New York Securities Co., 52 Wall St., New York, expects a May 6-10 offering date.

COMMERCIAL PROGRAMMING UNLIMITED, INC., 853 Broadway, New York, a computer programming school operator, filed some 90,000 common. Proceeds from the offering (with a maximum price of $5 per share) will be used for expansion and other corporate purposes. The underwriter, D.H. Blair Securities Corp., 66 Beaver St., New York, expects a late May offering date.

COMPTRAN COMPUTER CORP., 3010 S. Harvard St., Tulsa, Oklahoma, a company engaged in computer leasing, filed a statement to register some 400,000 common. Proceeds from the offering at $2.50 per share will be used for equipment acquisition. The underwriter, Parker, Bishop & Welsh, Inc., 100 Park Avenue Building, Oklahoma City, Oklahoma, expects a May 21 offering date for this new issue.

INTERNATIONAL COMPUTING SERVICE, INC., 8101 Biscayne Blvd., Miami, a company which furnishes commercial data processing services, filed to register some 115,000 common. Proceeds from the offering, at $4 per share, will be used to repay debts and will furnish working capital. The underwriter, First Hanover Corp., 67 Broad Street., New York, expects a June 3 offering date for this new issue.

TOPAS COMPUTER CORP., 41 East 42nd St., New York, a company which provides assistance in the establishment and maintenance of computer systems, filed a statement to register some 100,000 common. Proceeds from the offering (with the price to be set by amendment, maximum $10) will be used for debt repayment and other corporate purposes. The underwriter, John G. Kinnard & Co., Inc., 110 South 7th St., Minneapolis, expects a May 28 offering date for this new issue.

Alphanumeric Reports $1M Loss; NCR, SDS, Post Gains

Financial Items

LAKE SUCCESS – Alphanumeric, Inc. reported a net loss for the year ended Dec. 31 of $1,075,695, which compares with a loss of $71,300 in 1966. Virtually no sales were reported in 1967, a development period for the company which is involved in the development of computer oriented phototypesetting equipment.

Eugene Cuba, president, attributed a large part of the 1967 loss to the development of proprietary software programs and the start up expenses of the company's initial service center which went into operation late in the year. Some $340,000 of amortized development expenses are also included in the loss.

Alphanumeric is now producing cathode ray tube printers designed to operate directly with IBM/360 systems.

LOS ANGELES – Scientific Data Systems, Inc. has announced results for the first quarter ended March 31, 1968. Earnings rose 53% to $1,821,000 or $.46 per common share compared to $1,063,000 or $.30 per share in 1967. Revenues for the first three months increased 46% to $21,081,000 from $14,394,000 last year.

CHICAGO – Datronic Rental President Anthony Lazzara has announced a 352% increase in revenues for the nine months ended March 31, 1968 from the comparable figure last year. Revenues amounted to $878,775 in the 1968 period vs. $249,173 in 1967.

Earnings rose 246%, from $39,135 in 1967 to $96,363 in the 1968 period. Per share earnings increased 225%, from $.04 in 1967 to $.09 in 1968.

The company also announced net investment in IBM computer systems and machines of $6,483,307.

NEW YORK – "Orders for NCR Century Series equipment contributed materially to the high level of incoming business recorded in the first quarter," according to Robert S. Oelman, NCR chairman.

Company revenues increased 11% and earnings 10% over the comparable period last year.

Worldwide revenues from sales, services, and equipment rentals totaled $225,980,646 during the first quarter of 1968 vs. $203,908,605 in the comparable period in 1967.

Consolidated net income was $5,446,752 in 1968 vs. $4,964,792 in 1967. This was the equivalent of $.61 a share, up from $.56 a share last year.

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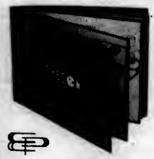

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Whether you've got computer headache #1401, #360 or #6500, Computer Exchange will provide answers. Drop into the Shelburne-Empress before dinner on April 29, 30 or May 1. If you prefer, call our New York office. Drinks, of course, are on us.

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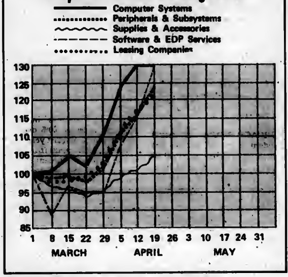
COMPUTERWORLD financial

Computer Stocks Trading Index



Index Up 4.8%, BAS Rises 53%

(continued from page 1)

53%, from 10-3/4 to 16-1/2 during the week. Recognition Equipment gained 37%, moving from 52-1/4 to 71-1/2.

A spokesman at Brandon Applied Systems told COMPUTERWORLD that an article very favorable to the company had appeared last Monday in Growth Stock Outlook. He also cited recently announced increases of 56% in yearly revenues and 90% in earnings; the general reaction in the market to small upcoming companies; interest by several large brokerage houses in the firm shortly before the quick rise; and the fact that the company is becoming better known. He noted that the company itself had announced "nothing yet" which would have directly triggered the rise. The stock rose 19% the previous week.

A press release from Recognition Equipment, a manufacturer of Optical Character Recognition devices, stated, "In the opinion of Recognition Equipment, there have been no developments which justify the recent market behavior of its stock." A four for one stock split is pending, however. This may explain some of the recent movement.

The biggest gains among computer manufacturers continued to be made by Scientific Controls, which was up 8% to 39. However, more than half the stocks in this usually strong sector declined during the week. Sperry Rand's loss was the largest. It was down 6% to 52-1/8.

Recognition Equipment led the Peripherals Sector with its 37% gain. The sector as a whole did fairly well last week and several other stocks showed substantial gains. Milgo Electronic was up 18% to 19-3/8; Optical Scanning gained 17% to 110; Bunker-Ramo and Alphanumeric both rose 15%.

Bunker-Ramo was the most active stock on the American Exchange several days last week. Milton E. Mohr, president of B-R, cited the company's earnings gain in the first quarter but said he didn't know of any other factor to account for the activity in the stock.

Alphanumeric's increase continued in spite of the release of figures which showed an increased loss for the company last year. Among the losers in the sector were Data Products, down 11% to 15-5/8 and Calcomp, down 9% to 38-1/8.

In the Supplies and Accessories Sector, substantial gains were made by Baltimore Business Forms and Wabash Magnetics. BBF gained 21% to 16-5/8, and Wabash rose 17% to 17-3/8. The two companies with prices below the March 1 base, Standard Register and UARCO, showed little movement. The former was up 0.96% and the latter was off 0.71%. Adams-Millis showed the largest loss declining 7% to 46, reversing a previous upward trend.

Brandon Applied Systems topped the Software & EDP Services Sector, gaining 53% to 16-1/2, as previously mentioned. Applied Data Research jumped 29% to 22. It announced last week that it will make available a PL/1 version of its Autoflow flowcharting system in the fall. Informatics also moved up, gaining 24% to 54. Computer Network and Computing & Software showed gains of 14% and 12% respectively. The latter recently began being traded on the American Exchange.

Among the leasing companies, Management Assistance reversed a decline and gained 19% to 12-1/2 to lead the sector. Levin-Townsend wasn't far behind with an 18% increase to 80. The firm has gained 74% since the March 1 base. Cyber-Tronics moved up 16% to 14-1/2. Biggest loss in the sector was suffered by Datronic Rental which declined 8% to 10-3/4. It has lost 14% since March 1.

COMPUTER STOCKS: TRADING SUMMARY

Week ending April 19, 1968

EXCHANGE	BASE PRICE 3-1-68	WEEK AGO CLOSING PRICE	CLOSING PRICE	COMPUTER SYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	165 3/8	205 1/2	202 7/8	• Burroughs	− 2 5/8	− 1.28	+ 24.15
NYSE	67 3/4	77 1/2	82 1/4	Collins Radio	+ 4 3/4	+ 6.13	+ 21.40
NYSE	101 1/2	148	141 1/2	• Control Data	− 6 1/2	− 4.39	+ 39.41
AMSE	102	138	138 3/4	• Digital Equipment	+ 3/4	+ 0.54	+ 36.03
NYSE	87 1/4	92 5/8	93 3/8	General Electric	+ 1	+ 1.08	+ 7.31
NYSE	60	74 7/8	72 3/4	Hewlett-Packard	− 2 1/8	− 2.84	+ 21.25
NYSE	93 1/8	118 3/8	122 1/8	• Honeywell	+ 3 3/4	+ 3.17	+ 31.14
NYSE	577	649	636 1/2	• IBM	− 12 1/2	− 1.93	+ 10.31
NYSE	103 7/8	128 1/4	125	• Nat Cash Register	− 3 1/8	− 2.44	+ 20.34
NYSE	78 1/4	53	51 1/8	• RCA	− 1 7/8	− 3.54	+ 9.07
NYSE	46 7/8	92 5/8	93 7/8	Raytheon	+ 1 1/4	+ 1.35	+ 19.90
OTC	22 1/2	36	39	• Scientific Controls Corp.	+ 5	+ 8.33	+ 73.33
NYSE	118 1/8	155 7/6	154 1/2	• Scientific Data	− 1 3/8	− 0.89	+ 30.79
NYSE	45	55 1/4	52 1/8	• Sperry Rand	− 3 1/8	− 5.66	+ 15.83
OTC	22 1/2	26 1/2	27 3/4	• Systems Engineering Labs.	+ 1 1/4	+ 4.72	+ 23.33

EXCHANGE	BASE PRICE 3-1-68	WEEK AGO CLOSING PRICE	CLOSING PRICE	PERIPHERALS & SUBSYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	56 5/8	63	64 1/4	Addressograph-Multigraph	+ 1 1/4	+ 1.98	+ 10.06
OTC	64	98	115	Alphanumeric	+ 15	+ 15.31	+ 76.56
NYSE	29	31 1/6	30	Ampex	− 1 1/8	− 3.61	+ 5.45
OTC	17 1/4	20	21 1/4	Bolt Beranek & Newman, Inc.	+ 1 1/4	+ 6.25	+ 23.19
AMSE	13 1/2	12 1/8	14	Bunker-Ramo	+ 1 7/8	+ 15.46	+ 3.70
AMSE	32 1/8	42	38 1/8	• Calcomp	− 3 7/8	− 9.23	+ 18.68
OTC	15 1/4	17 1/2	15 5/8	• Data Products	− 1 7/8	− 10.71	+ 2.46
OTC	19 1/4	22	21 1/2	• Digitronics	− 1/2	− 2.27	+ 11.69
OTC	39	42 3/4	47 3/4	• Electronic Memories	+ 5	+ 11.69	+ 22.44
OTC	10	9 5/8	9 5/8	• Fabri-Tek	— —	— —	− 3.75
OTC	34	45	50	Gerber Scientific	+ 5	+ 11.11	+ 47.06
AMSE	18 7/8	16 3/6	19 5/6	Milgo Electronics	+ 5	+ 18.32	+ 14.81
AMSE	115 1/8	166	168 1/2	• Mohawk Data Sciences	+ 2 1/2	+ 1.51	+ 46.36
OTC	74	94	110	• Optical Scanning Corp.	+ 18	+ 17.02	+ 48.64
OTC	72	85	92	Photon	+ 7	+ 8.23	+ 27.78
AMSE	25 5/8	27 1/2	26 7/6	• Potter Instrument	− 5/8	− 2.27	+ 4.88
OTC	40 1/4	52 1/4	71 1/2	• Recognition Equipment Corp.	+ 19 1/4	+ 36.84	+ 77.64
AMSE	16	19 3/4	20 1/2	Rixon Electronics	+ 3/4	+ 3.80	+ 28.13
NYSE	46 1/8	47 1/2	50 1/2	Sanders	+ 3	+ 6.32	+ 9.48
OTC	40 1/2	39 1/2	43 1/2	• Tally Corp	+ 4	+ 10.13	+ 7.42
NYSE	262 1/4	273 1/2	266 1/2	Xerox	− 7	− 2.56	+ 1.62

EXCHANGE	BASE PRICE 3-1-68	WEEK AGO CLOSING PRICE	CLOSING PRICE	SUPPLIES & ACCESSORIES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	48 1/2	50	50	• Acme Visible	— —	— —	+ 3.09
NYSE	41	49 3/8	46	Adams-Millis	− 3 3/8	− 6.84	+ 12.20
OTC	13 5/8	15 3/4	16 5/8	• Baltimore Business Forms	+ 2 7/8	+ 20.91	+ 22.02
AMSE	27	30	29 3/8	• Barry Wright	− 5/8	− 2.08	+ 8.80
OTC	27 1/4	28	28	• Ennis Business Forms	— —	— —	+ 2.75
NYSE	84 1/8	92	93 1/2	• 3M Company	+ 1 1/2	+ 1.63	+ 11.14
OTC	58	63	66 1/2	• Memorex	+ 3 1/2	+ 5.55	+ 14.65
TOR	27 1/4	31	31 7/8	• Moore Business Forms	+ 7/8	+ 2.82	+ 16.97
NYSE	57 1/4	61 1/4	64 1/8	Nashua Corp.	+ 2 7/8	+ 4.69	+ 12.01
OTC	31 1/4	30	32	Reynolds & Reynolds	+ 2	+ 6.67	+ 2.40
OTC	34 1/2	26	26 1/4	• Standard Register	+ 1/4	+ 0.96	− 23.91
NYSE	37 3/4	35 1/4	35	• Uarco	− 1/4	− 0.71	− 7.28
AMSE	14 1/4	14 7/6	17 3/6	Wabash Magnetics	+ 2 1/2	+ 16.81	+ 21.93
OTC	25 5/4	26 1/2	27 1/4	• Wallace Business Forms	+ 3/4	+ 2.83	+ 5.83

EXCHANGE	BASE PRICE 3-1-68	WEEK AGO CLOSING PRICE	CLOSING PRICE	SOFTWARE & EDP SERVICES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	17	17	22	• Applied Data Research	+ 5	+ 29.41	+ 29.41
OTC	15 1/2	21	19	• Aries	− 2	− 9.52	+ 22.58
AMSE	47	55	56	Automatic Data Processing	+ 1	+ 1.82	+ 19.15
OTC	9	10 3/4	16 1/2	• Brandon Applied Systems	+ 5 3/4	+ 55.49	+ 83.33
AMSE	22 7/8	27 5/8	26 1/8	Computer Applications	− 1 1/2	− 5.43	+ 14.21
OTC	30	35	40	Computer Network	+ 5	+ 14.28	+ 33.33
AMSE	40	46	45 5/8	• Computer Sciences	− 3/8	− 0.82	+ 14.06
OTC	39	45	44 3/4	• Computer Usage	− 1/4	− 0.56	+ 14.74
OTC	36 1/2	46 1/8	51 1/2	• Computing and Software	+ 5 3/8	+ 11.65	+ 41.10
OTC	12 1/2	12	11 3/4	• Digitek	− 1/4	− 2.08	− 6.00
AMSE	38 3/8	43 1/2	40 1/8	Electronic Computer Prog. Inst.	− 3 3/8	− 7.78	+ 4.56
OTC	35	43 1/2	54	• Informatics	+ 10 1/2	+ 24.14	+ 54.28
OTC	11 1/2	11 1/2	12 1/2	• National Computer Analysts	+ 1	+ 8.70	+ 8.70
AMSE	51	38 1/4	39 1/2	Planning Research	+ 1 1/4	+ 5.27	+ 27.42
OTC	9	8 1/6	6 1/2	Software Systems	+ 3/8	+ 4.61	− 5.56
OTC	20 1/2	19 1/2	19 1/2	TBS Computing Centers, Inc.	— —	— —	− 4.88
OTC	63	79	84	• University Computing	+ 5	+ 6.35	+ 33.33

EXCHANGE	BASE PRICE 3-1-68	WEEK AGO CLOSING PRICE	CLOSING PRICE	LEASING COMPANIES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	19 1/4	22	22 3/4	Chandler Leasing	+ 3/4	+ 3.41	+ 18.18
AMSE	25 1/6	29 3/8	28 1/2	• Computer Leasing	− 7/8	− 2.98	+ 13.43
OTC	12 1/4	12 1/2	14 1/2	• Cyber-Tronics	+ 2	+ 16.00	+ 18.36
AMSE	106 5/8	115 1/8	120 1/4	• Data Proc. Financial & General	+ 5 1/8	+ 4.45	+ 12.78
OTC	12 1/2	11 3/4	10 3/4	Datronic Rental	− 1	− 8.51	− 14.00
OTC	20	24	25	• [illegible] Computer	+ 1	+ 4.17	+ 25.00
OTC	13 1/4	13 3/4	13 5/8	• DPA, Inc.	− 1/8	− 0.91	+ 2.83
AMSE	28 3/4	37 1/2	36	• GC Computer Corp.	− 1 1/2	− 4.00	+ 25.22
AMSE	91	132 3/4	138 1/2	• Leasco	+ 5 3/4	+ 4.33	[illegible]
AMSE	45 7/8	67 5/8	80	• Levin-Townsend Computer Corp.	+ 12 3/8	+ 18.30	+ 74.39
OTC	10 1/2	10 1/2	10	• LMC Data, Inc.	− 1/2	− 5.00	− 5.00
OTC	10 7/8	10 1/2	12 1/2	• Management Assistance	+ 2	+ 19.05	+ 14.94
AMSE	41 5/8	37 1/2	41 1/8	National Equip. Rent.	+ 3 5/8	+ 9.67	− 1.21
AMSE	38	48 1/2	51 1/2	• Randolph Computer Corp.	+ 5 3/8	+ 7.02	+ 35.53
AMSE	10 7/8	13	13 1/8	U.S. Leasing	+ 1/8	+ 0.96	+ 20.69

* Companies included in Computerworld's stock trading index for each sector.

Wall Street's View

Buying CDC, SR on Dips Suggested

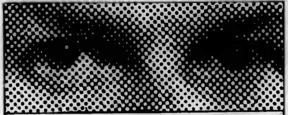
CONTROL DATA – Bache & Co.'s chartist reports that CDC's recent trading pattern indicates backing and filling within a narrow trading band as the stock consolidates its technical position. A move through 149, with increased activity, would suggest an immediate test of the 160-165 level. Bache recommends that trading accounts seeking to anticipate the breakout should add to positions, preferably on dips. In contrast, Philips, Appel & Walden suggest that short positions should be held on CDC at current levels.

GENERAL ELECTRIC – Amott, Baker & Co. notes that computer and nuclear work losses are declining within the company, and that management has begun shifting emphasis to improve the profit margins. Substantial and consistent earnings gains over the next several years are predicted. At current levels Amott, Baker & Co. feels the stock appears extremely attractive and offers above average appreciation potential.

SANDERS ASSOCIATES – Philips, Appel, Walden's chartist notes that SA has formed a "head and shoulders" reversal pattern with the "neck-line" at 51-3/4. Purchases are suggested at current levels with a protective stop loss placed at 50-7/8. The stock has an objective to 60-62 according to PAW. Bache & Co. sees the 58-60 level as a new objective for SA, with 49-50 as the support level.

SPERRY RAND – Bache & Co. recommends that the stock be bought on dips with an objective of 60-65. Davis, Skaggs & Co. believes that new, profit conscious management at SR is taking steps to systematically upgrade the company's profitability. DS&Co. estimates earnings for fiscal '68, ended 3/31/68, at $1,90, and projects fiscal '69 earnings at $2.30 per share.

POSITION ANNOUNCEMENTS



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CW's Career Column

Recruiting for EDP Is Specialized Field

By Robert Ziegel

Recruiting and retaining qualified personnel is an expensive and time consuming activity in the EDP field. Many thousands of dollars are spent annually on newspaper and magazine advertising, employment agency fees, relocation expenses, and fringe benefits packages in the effort to attract and hold good people.

Recruiting in the EDP industry has become a highly specialized field. It is a complex task, not unlike that of an industrial or technical salesman. Like sales it requires the basic elements of knowing the market (and the competition), knowing your product (opportunities within your company), and most important – *honesty*. Painting a rosy but untrue picture for a prospective employee may be good for the hiring percentage, but it does far more harm than good when viewed long range, and word does get around.

Recruiting Takes Precedence

Recruiting appears to be the more highly developed skill when it is compared with the ability of most companies to retain personnel in the EDP field. Nowhere else in industry does a larger gap exist between the number of qualified people and the number of jobs.

The skills required in the computer industry are not easily or quickly acquired, and new equipment is created and marketed so fast that personnel demands become more and more pressing, The industry is expanding so rapidly that formal education and OJT can hardly keep pace with the increased demand for qualified people.

Because of this situation, there is a tremendous amount of competition for the skilled and experienced individual. Recruiting appears to be the front on which this competition shows itself most. The area of employee retention appears almost forgotten by comparison. Once an applicant is wooed and won he is for all intents and purposes forgotten. This is an area of great concern to both employee and employer alike.

Neglect Creates Vacancies

The function of retaining qualified people is a much more complex and long range one compared to recruiting. Simply by virtue of the time element, it requires a continuing rather than a concerted effort. Due to its day to day nature, it becomes intermixed with other phases of management's work: It is often neglected to a very high degree because it is overshadowed in a work producing environment. Dissatisfaction builds slowly and gradually, almost unnoticed, until one day there is another vacancy to be filled.

What is needed is a renewal of interest by management in the causes and means of preventing unnecessary turnover. In a highly technical field like data processing, where management people are chosen for technical proficiency probably more than management ability, this interest will not come easily. Formal education is necessary if these people are going to be efficient managers of people as well as of machines. Management skills must be taught if turnover rates are going to be minimized.

In a machine environment it is sometimes difficult to think in terms of people, but if data processing management is to be effective in retaining people, an acute awareness of motivation, personality, and the elements of the work environment which affect employee attitudes is necessary. The employee who is dissatisfied is inefficient in terms of his productivity for his employer, and finda himself in a very uncomfortable situation. Without a DP manager who is "tuned in" to people, the unhappy employee has nowhere to turn, except to the employment market.

Employees Want to Progress

People have a natural desire to progress and accomplish. If their progress is not at a pace that they consider satisfactory, they want to know the reason why. Very often, however, they are not confident enough to ask why, and instead begin to blame management for their lack of progress and look to the job market for vindication. It is the task of management to see that each employee is kept informed of his progress, or lack of it, and the reasons. As in recruiting, *honesty* will pay off. The employee will respect his manager for it, and if he disagrees, he has an opportunity to defend his position.

In this age of advanced communication, face to face interchange of opinions and ideas seems to have fallen out of favor in the work environment. Without it, turnover will remain an ever increasing problem in the EDP field.

A salesman earns his living by conveying ideas, but he is far from being the only person in industry who must communicate effectively. At all levels of supervision and management, communications skill must be developed to a high level if employee retention is to be achieved. Effective management of people is a primary function in the EDP field. Employees must progress with an employer or they will be lost to the competition.

Managers Must Be Trained

Just as there are few, if any, born salesmen, there are just as few born managers. The ability to manage people must be learned, sometimes painfully, either formally or by experience. Experience, in this case, is not the best teacher. To the contrary, it is a highly expensive and often non-productive method for acquiring insight into the problems of keeping employees satisfied and therefore employed.

The Data Processing Manager cannot control all the elements of employee environment. He must therefore do all within his power to control those aspects of it that do come under his jurisdiction, and keep an ear to the ground for those things he can't control.

The personnel aspects of the DP manager's job are among the most important. If he is able to keep his employees satisfied and productive, his technical job will be far easier.

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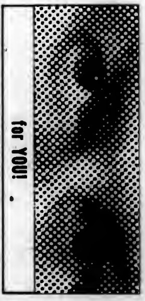

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Wright Line tape library racks sufficient to hold 2400 tapes in canisters. Wrightline catalog #5726-50, 5776-13, 5789-24, and 5786-24. Cost over $1700, sell for $800. Call (408) 245-0795 Everett Turner, Mellonics, 1001 West Maude, Sunnyvale, California, 94086.

We are pleased to announce...

A new, specialized Career Counseling Firm for Computer Professionals only

The professionals in our industry greatly need competent, unbiased career counsel. Our purpose is to provide for *orderly* placement of talented computer professionals in our exploding industry. No one really benefits from helter-skelter job switching. We propose to help computer people to make their career strategy a systematic, intelligent, well-thought-out program, based on far more research and knowledge about the opportunities in our industry, than anyone could have by "going it alone".

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We, at CGC, are computer people as well as career counsellors. We've made field studies of hundreds of installations not only in the N.Y. Metropolitan area but throughout the country. We know what is going on at these companies and can talk to you on your own professional level about their installations, installed hardware, programming systems, applications, future plans and personnel needs. We will help give you a view of *all* the career opportunities available — not just those that you might encounter on your own.

You use our counselling facilities entirely FREE of cost. All fees are paid by our client companies. There are no charges or fees of any kind to professionals who come to CGC for career help. We are prepared to assist programmers, systems analysts and EDP executives who are experienced in computer sciences, management sciences and operations research.

A resume is not required. Contact us today. We prefer to deal with computer people as *people*, not as "resumes". We want to know *you — personally*. And we'll discuss your career with you when *you* feel relaxed and inclined to talk about it. In the New York area phone us today to arrange for a confidential discussion. Write us if you are outside the New York area.

Donald W. Horton is CGC's Director

Don Horton has come from IBM's Data Processing Division (where he was Product Manager) to head CGC's new career counselling firm. Don's experience in the EDP field goes back over twelve years. He intimately knows the people . . . the companies . . . the installations . . . the technology that combine to make up the better career opportunities in today's computer field. Ask for Don Horton; you'll find him easy to talk to.

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Bin Aids Tape Duplicators

The production capacity of any magnetic tape duplicator can be improved by 25 to 100 per cent by a new horizontal loop bin. Tho Model 1260 combines a high speed endless loop bin with a digital integrated circuit control system. The pneumatic bin operates at speeds in excess of 300 ips and will handle up to 1800 feet of tape without pulling, creasing, or edge damage. In a duplication system, the 1260 controls the whole record/reload sequence. Gauss Electrophysics, Inc., 1653 12th St., Santa Monica, Calif. 90404.

Laminated Tapes

Laminated punched tapes are available in five colors for use in punching and reading devices with computer input/output and numerical control applications. The MM 115 tape is made up of a two ply laminate of polyester film, and is available in rolls of 1200 and 1800 feet. The PMPO 1151 tape is a three ply lamination of film or paper, also available in 1200 or 1800 foot lengths. The MFM 153515 foil or polyester film comes in 1000, 1200, or 1800 foot lengths. Chase-Foster Div., Keene Corp., 199 Amaral St., East Providence, R.I.

Portable Recorder

The standard Digi-Data Model 1430 recorder is now available with IBM 360 computer compatibility. This includes nine track, 800 bpl packing density and generation of the Cyclical Redundancy Check Character (CRCC). The new portable Model 1439 has a speed range of from zero to 300 cps, and can go through a 10-1/2 inch reel of tape in less than three minutes on fast rewind or fast forward. Digi-Data Corp., 4315 Baltimore Ave., Bladensburg, Md. 20710..

ITT to Introduce Time Sharing Service

(continued from page 1)

Terming RTS "the nation's most advanced computer time sharing service," Leonard listed among its features the use of IBM System/360 Model 50 and 65 computers, a proprietary software system that assures computer response to inquiries in as little as two seconds, availability of high level programming languages such as Fortran IV (Version G), and compatibility of the system with a wide variety of existing computer communications devices.

The new system also has a simple 25 word command language that, in many cases, enables users with just a few hours of experience to converse with a computer, he added.

Extensive tests have shown that through RTS the efficiency of the average programmer is increased by more than 400% when writing and debugging programs, Leonard said.

Availability of the service on a nationwide basis will help ease the nation's critical shortage of experienced programming talent, he said.

Fourteen major business, educational, and scientific organizations have been testing the system for the past two months in the New York area. The service will be introduced in Boston, Los Angeles, and Washington, D.C., during the next three months and in approximately 20 other major commercial and industrial areas of the nation by the end of 1969, Leonard said.

Capable of handling up to 100 terminal users per computer in its present state of development, RTS is being expanded to give it the capacity of serving more than 300 terminal users per computer in the near future.

Compatible Tape Drives Delivered

NEW YORK — The first deliveries of the MAI plug-for-plug compatible tape units have been made to customers throughout the United States and Canada during the last few weeks. User reaction is said to be good, although there have been one or two standard problems that go with the original installation of a new product.

The new drives are 729 compatibles, which can later be modified into 2400 compatibles for installation on System/360 and equivalent machines. Installation of the 360-compatible versions should begin in approximately six months.

Because they are designed for later operation with the 360, the new tape units stand somewhat lower than the other tape units on the IBM second generation systems, but otherwise appear to be usable in exactly the same way.

One user told COMPUTERWORLD that, "They are here; they are working, and I am happy with them. Maybe in three months time I may not be, but at the moment I most certainly am."

MAI recently entered into a contract with Memorex Corporation for the supply of plug-for-plug compatible disk drives, but as yet no formal announcement of their availability has been made.

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AUERBACH has no magic formula; it takes outstanding technical talent, hard work, professional project control supported by a strong marketing capability.

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